# BROWN ATROPHY OF THE HEART AS A RESULT OF CHOLECYSTITIS AND AS A COMPLICATION OF CHOLECYSTECTOMY.[1]

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In the progress of surgery into the domain of internal medicine no advance has offered more brilliant results than the surgery of the biliary tracts. There are, however, mysterious dangers connected with operations upon these patients which have so far defied either prognostic diagnosis on the one hand or pathologic interpretation on the other. In operations upon the biliary tract the fear of cholæmia, of hæmorrhage, of complete suppression of urine, and of unmeasurable shock, deter experienced operators from a too sanguine prognosis and a too impetuous surgical interference.

A number of unexpected deaths have occurred after cholecystectomy and other rather brief operations upon the biliary tract in which the necropsy has failed to show any gross pathologic lesion other than the changes in the heart and large blood-vessels incident to any protracted toxæmia. It has been my misfortune to meet one such unexpected issue in a cholecystectomy on a young woman where I believed myself warranted in making a most favorable prognosis. My experience in cholecystitis had called my attention sharply to the relation between this disease and easily recognized secondary disease of the heart, but no previous instance had occurred in my practice calling my attention to the result of the very serious toxæmia which the following case most tragically portrays.

Mrs. C., thirty-two years old, had a perfectly clear and unrelated family history, except, perhaps, the fact that her mother died of biliary disease. She had no serious sickness as a girl.

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Her menstruation began early, but was scanty. She always had a good digestion, was extremely active, and weighed ordinarily 136 pounds. Eight years ago she suffered of a protracted, painful disease of her left knee. This kept her off from her feet for several months. It was slow and insidious in its onset, only moderately painful, and produced a contraction and flexion of the knee, which disappeared only after several months on crutches and a long course of massage and other treatment. She never had a typhoid or any other febrile or septic condition; but four years ago she had a sickness which was called the grippe. It never confined her to bed, but it materially interfered with her health. She has been married four years, and has never been pregnant nor suffered of any vaginitis or endometritis. Occasionally during the past eight years she has had frequent attacks of stomach trouble, and during the past three and a half years she has had severe abdominal pains terminating usually in vomiting. These attacks have been so severe as to require the use of large doses of morphine, and they have come on so suddenly as to interrupt a railway journey. Her digestion has been poor in the intervals between the attacks, and she has spent several months at water-cures and in the South in search of health. She has very gradually lost considerable weight, estimated at twenty or thirty pounds, and has become weak, irritable, fretful, and somewhat hysterical. Only twice during the past few years has she been moderately jaundiced for a day or two after a paroxysm.

She appeared to be an animated, high-strung, slightly cachectic woman, rather spare, weighing scarcely 100 pounds, but active, alert, and irritable. She appeared slightly anæmic, and her blood count stood at 4,600,000 red corpuscles, 7400 white corpuscles, and a high hæmoglobin index. Her conjunctivæ were slightly yellow, and the blood-vessels were dilated and tortuous, as she said from retching and vomiting. Under her lower lid were dark lines from the same cause. The gums and teeth were in perfect condition, but slightly retracted and pale, with no blue line. The lymph glands in the back of the neck, at the elbows, axillæ, and groin were not palpable, except in the left groin above the affected knee a diffuse packet was easily felt. The lungs appeared perfectly normal to percussion and auscultation. The area of cardiac dulness was normal, with the apex beat in the fifth interspace three and a half inches from the mid-line. The heart sounds were regular and without murmur or noticeable accent. The area

of hepatic dulness began at the fourth interspace and extended to the border of the ribs in the mammary line and normally elsewhere. On deep inspiration the region of the gall-bladder was excessively tender, but otherwise there was no tenderness anywhere over the abdomen. There was no visible or palpable tumor. The stomach extended to a line an inch above the umbilicus. There was no splashing sound. The navel was not retracted and contained no enlarged lymph-glands. The right rectus was distinctly more tense than the left. A pelvic examination disclosed no abnormality. The cervix was small, hard, and showed no sign of present or past pregnancy. An examination of the urine developed nothing pathologic. Its specific gravity was 1024, acid reaction, 1.3 per cent. of urea, no abnormal constituent, no microscopic elements except a few leucocytes.

The attacks of biliary colic were so severe, so frequent, and produced such digestive and nutritive disturbances, that I advised cholecystectomy. After a few weeks the patient returned for operation, and the routine examinations of the hospital confirmed the previous findings and established the previous indications.

After being prepared for operation by a single day's stay in bed she was operated upon under gas and ether anæsthesia. The upper half of the Bevan incision three and a half inches long was made, and the gall-bladder brought into the wound. It was thick, white, and evidently diseased. It was so distended with its content that no hard bodies could be positively palpated. It was therefore opened and the stones to the number of a hundred or more, two of which were large and S-shaped, each of them three-quarters of an inch long, were removed. After wiping out the gall-bladder no bile appeared, and a cholecystectomy was undertaken. The cystic duct was separated from the liver with a blunt instrument, and the finger passed under the duct. A curved artery forceps was then carefully applied over the finger so as to include all the tissues in the cystic duct. A second artery forceps was applied ventrally and the duct cut off between them. The gall-bladder was quickly removed, and on account of the immobility of the liver and the desire to make the operation as short as possible, no attempt was made to cover the denuded surfaces with peritoneum. An iodoform gauze drain was passed down to the cystic duct, covering the fissure, and coming out of the wound by the side of the artery forceps. The rest of the abdominal wound was quickly closed. The operation lasted thirty-eight

minutes, including scrubbing and dressing. The condition of the patient at the end of the operation appeared to be excellent.

The nurse's record shows that her pulse when she was placed in bed was 104, her temperature 97.5° F., and her respirations, 18.

She was given one-fourth grain of morphine hypodermically at 5.15 P.M., at which time her pulse was 98, her temperature 97.5° F., and her respirations 24. She voided six ounces of urine, which was sent to the laboratory. At 9 o'clock she was nauseated, and her pulse rose to 108. Her condition was reported to me, and I ordered the dressings removed to look for hæmorrhage. At 10 o'clock she began to show cyanosis, and her pulse was 118, her respirations 30, and her temperature 97.6° F. She was delirious, and died twenty-five minutes later, greatly cyanotic.

The complete necropsical report was made by Professor Zeit from the examination of the principal material and the report of Dr. Kohler, from which it is enough to say that there was no evidence of hæmorrhage or infection in or about the wound. The omentum extended to the pubes in the median line, while in the region of the gall-bladder it was retracted and somewhat injected. The transverse colon, cæcum, and urinary bladder were all distended. The appendix was 8 centimetres long and extended into the pelvis, but it was without adhesion. The stomach extended a hand's-breadth below the xyphoid cartilage. The liver did not extend below the costal arch. The gall-bladder was absent. The pylorus was thickened and bound by adhesions to the transverse colon. There were no blood-clots or bile stains in the region of the gall-bladder, but the surrounding structures were red. The small intestines were collapsed, except the duodenum. The right pleural cavity was free and without adhesions. The left was bound to the diaphragm over nearly its whole extent. The thymus gland was small and firm. The pericardium was smooth, glistening, and contained a small amount of clear fluid. The heart weighed 230 grammes; the surface was smooth, and showed more than the normal amount of fat over the right ventricle. A section showed the characteristic color and markings of brown atrophy. The aorta and all its larger branches and the coronary arteries were studded with atheroma. The atheroma completely surrounded the orifices of both coronaries. The lungs were without thrombi. The spleen weighed 225 grammes; the pulp was prominent and the capsule wrinkled. The kidneys weighed 115

and 125 grammes respectively; the capsule stripped with difficulty; the cortex was as ½ to 2. The liver weighed 1360 grammes; its consistency was flabby, its markings normal.

The anatomical diagnosis as made by Professor Zeit was cholecystectomy, brown atrophy of the heart, atheroma of both coronary arteries and the large blood-vessels, chronic diffuse nephritis, interstitial type, slight splenic tumor, chronic interstitial oöphoritis, with hydrops folliculi, hyperæmia of the pancreas.

I am accustomed to provide against every possible danger by a careful study of the patient over a considerable period immediately before any surgical procedure where an emergency does not exist. In this instance this was not done. She did not remain in the hospital long enough before the operation. She was not built up sufficiently after her last attack of colic. The urinalyses were not made promptly enough after the urine was passed. Even though she was only thirty-two years old and had perfectly soft radial arteries, it is likely that repeated examinations of her blood-pressure would have suggested atheroma. It is possible that had I observed her during one of her colics the heart's action might have suggested angina. It seems strange that casts were not observed at any of the examinations. They were doubtless present, and while their presence would not have deterred me from cholecystectomy, they would have materially modified my prognosis, though they could not have increased my care during the operation nor modified my judgment of its necessity. It is possible that a more expert diagnostician would have recognized something suggestive in the heart sounds, but the case seemed so clear and uncomplicated that I relied entirely upon myself and my assistants. In any case I consider it my duty to call the attention of the profession to the possibility of a change in the heart and the larger blood-vessels due to sepsis, incident to cholecystitis, or the infection of the other natural cavities of the body, the sinuses of the head and face, the pelves and calyces of the kidneys, the appendix, the tubes, and the posterior urethra.